Risk Factors of Pre-Eclampsia of Women Birth From History of Eating Behavior During Pregnancy

by Suparji Suparji

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Risk Factors of Pre-Eclampsia of Women Birth From History of Eating Behavior During Pregnancy

Teta Puji Rahayu[1], Suparji[1], Nana Usnawati[1]

[1]*Lecture, Jurusan Kebidanan, Politeknik Kesehatan Kementerian Kesehatan Surabaya, Indonesia*

Abstract

Introduction: Preeclampsia is the second leading cause of maternal death, affecting 3% to 8% of pregnant women worldwide. Pregnant women preeclampsia in Magetan Regency in 2017 were 189 people, while in 2018 there were 270 people. The purpose of this study was to analyze the risk factors for preeclampsia from eating behavior factors in pregnant women. ***Methods:*** A case control study design with a retrospective approach. The research was conducted in the working area of the Community Health Center, Panekan District, Magetan Regency. The population of this study was data of all mothers giving birth in 2018 of 210 mothers. The sample size of the control group was 27 mothers giving birth without preeclampsia. The ratio between the case group and the control group was 1: 1, so the number of samples was 54 people. The sampling technique was simple random sampling. The independent variable was eating behavior and the dependent variable was the incidence of preeclampsia. Data collection tools in the form of questionnaires and study of medical record data documentation. The data analysis used was descriptive and logistic regression analysis. The error rate is set at α <0.05. ***Results:*** The results of the study using logistic regression of eating behavior obtained p value = 0.00 (p <0.05) and OR (Exp B) 35.714. ***Conclusion:*** The conclusion of the research results is that eating behavior affects the incidence of preeclampsia. Pregnant women who have unhealthy eating habits have a 35x greater risk of developing preeclampsia than pregnant women with healthy eating habits.

Keywords: *Pre-eclampsia, eating behavior, women birth, pregnancy*

Introduction

Preeclampsia is a condition in which an increase in blood pressure is accompanied by signs of hypertension and an increase in urinary protein that usually occurs in TM III pregnancy. If you don't get early treatment, preeclampsia can progress to eclampsia[1]. Preeclampsia (PE) is a contributor to maternal and infant mortality and morbidity. Preeclampsia is a health problem that often occurs in pregnancy.

Corresponding Author:
Teta Puji Rahayu
Lecture, Jurusan Kebidanan, PoliteknikKesehatanKementerianKesehatan Surabaya, Indonesia, E-mail: tetapujirahayu@gmail.com, Telp.(031)5027058,Fax. (031) 5028141

Preeclampsia is the second largest cause of maternal death, affecting 3% to 8% of pregnant women worldwide. Nearly 18% of maternal deaths due to preeclampsia mostly occur in developing countries[2]. In Indonesia, hypertension is the first cause of high maternal mortality. In 2015, the MMR was 305 / 100,000 KH. In 2024 it is targeted that the Maternal Mortality Rate (MMR) will decrease to 232 / 100,000 KH. The percentage of known causes of maternal death was 33.07% hypertension, 27.03% bleeding, 15.7% non-obstetric complications, 12.04% obstetric complications, 6.06% infections and 4.81% others SRS LITBANG[3]. The prevalence of preeclampsia in East Java in 2018 was 31% or as many as 163 people. This tends to increase compared to the incidence of preeclampsia in 2017 of 28.92% or as many as 153 people. Meanwhile, MMR in East Java in 2018 experienced a decline from the previous year, from 529

people to 522 people[4,5]. Preeclampsia is the second contributor to maternal mortality. The percentage of causes of maternal death in East Java in 2018 is known to other causes, namely 32% or 170 people, Pre-Eclampsia / Eclampsia, which is 31% or as many as 163 people and bleeding, 23% or as many as 119 people, heart 10% or 51 people[5]. While the smallest cause was infection by 4% or as many as 19 people SRS LITBANG[3]. Based on a preliminary study of LB3KIA data in Magetan Regency in 2017, the prevalence of preeclampsia in pregnant women was 189 people. Meanwhile, in 2018 there were 270 people. This shows that there has been an increase in the incidence of preeclampsia from 2017 to 2018, namely as many as 81 people. The highest incidence was in the area of the Panekan Community Health Center as many as 27 people. Preeclampsia is the second cause of death after bleeding, as many as 2 people died of preeclampsia or 15.38% per 100,000 KH[4,5,6]. AKI is an indicator of the success of maternal health efforts. This indicator is not only able to assess maternal health programs, but also able to assess the degree of public health, because of its sensitivity to improving health services, both in terms of accessibility and quality[5].The causes of preeclampsia are maternal health status, reproductive status, nutritional status, access to health services and health behavior[7]. Health behavior is a response to stimuli. Health behavior consists of 3 aspects, one of which is nutritional behavior / eating behavior[8]. According toRahayu L.D and Suryandari A.E 2014 The habit of consuming foods high in fat and high in salt can cause pre-eclampsia to occur frequently in pregnant women so that adequate nutritional habits can prevent mothers from pre-eclampsia disorders[8]. Research conducted byRahayu L.D and Suryandari A.E 2014with the title "Relationship between junk food consumption habits and the incidence of preeclampsia in pregnant women at Prof. Dr. MargonoSoekarjo Hospital" concluded that the habit of consuming junk food can cause pre-eclampsia[1,8]. There are 2 impacts that can be experienced by pregnant women with preeclampsia, namely the impact on the fetus and for the mother herself. For the fetus it can cause growth disorders (IUGR), fetal death in the womb (IUFD), LBW. Meanwhile, the impact on the mother is that the mother becomes unconscious (coma) until she dies[1,2,3].

The magnitude of the influence of preeclampsia on high maternal mortality and the risky impact of preeclampsia on maternal health, it is necessary to make efforts to prevent and handle preeclampsia cases. The government's strategy in reducing the Maternal Mortality Rate in Indonesia based on RAKERNAS 2019 is through an intervention strategy consisting of four main things, namely increasing access to health services, improving the quality of health services, empowering communities and strengthening governance. The strategy includes quality ANC services according to the 10 T standard, pregnant women and giving birth in health facilities, quality ANC and PNC, early detection, an integrated referral system and a hospital for mothers and babies[4,5,9].

Research purposes

The purpose of this study was to analyze the risk factors for reaction of eating behavior factors in pregnant women.

Materials and Methods

The research design used was case control with a restropective approach[10]. The research was conducted in the area of the Community Health Center, Panekan District, Magetan Regency, East Java, Indonesia. The population of this study is data of all mothers giving birth at the Community Health Center, Panekan District, Magetan Regency, East Java, Indonesia. In 2018 there were 210 mothers. The sample of the case group was all women who gave birth with a history of preeclampsia and in the control group were some mothers who had no history of preeclampsia[10,11]. The comparison between the case group and the control group was 1: 1, so the sample size was 54 people. The sampling technique used was simple random sampling technique[12]. The independent variable in this study was eating behavior and the dependent variable was the incidence of preeclampsia. Data collection tools with questionnaires and study medical record data documentation. The data analysis was descriptive and analytical logistic regression. The

error rate was set at α <0.05.[11,12]

Result

The results of the study on a history of eating behavior during pregnancy with the incidence of pre-eclampsia in childbirth are

Data Characteristics Respondents

Table 1. Case Group Data by Age, Parity, Education, and Occupation

Characteristics	Frequency	Percentage
Age		
20-35 years		
35 years old	20	74
Total	7	26
Parity	**27**	**100**
Primipara	7	26
Multipara	20	74
Total	**27**	**100**
Education	5	18.5
Primary school	10	37
Junior High	11	40.8
Highschool equivalent	1	3.7
Total	**27**	**100**
Profession	11	40.7
IRT	8	29.6
Farmer	4	14.9
Entrepreneur	3	11.1
Private	1	3.7
Total	**27**	**100**

Based on the research data which can be seen in table 1, an overview of the characteristics of mothers who experience preeclampsia based on age groups shows that most respondents who experience preeclampsia, based on the 20-35 year age group, are as many as 20 people (74%), from the level of parity Multipara more 20 people (74%), based on the education level of the senior high school group as many as 11 people (40.8%) and based on the type of work, the highest incidence of pre-eclampsia in the IRT group was 11 people (40.8%).

Table 2. Data for the Control Group by Age, Parity, Education, and Occupation

Characteristics	Frequency	Percentage
Age		
20-35 years	26	96.3
35 years old	1	3.7
Total	27	100
Parity		
Primipara	8	29.6
Multipara	19	70.4
Total	27	100
Education		
Primary school	3	11.1
Junior High	7	25.9
Highschool equivalent	17	63
Total	27	100
Profession		
IRT	9	33.3
Farmer	5	18.5
entrepeneur	11	40.7
Private	2	7.5
Total	27	100

The research data on the incidence of pre-eclampsia in pregnant women in the control group in table 2 shows that almost all of the mothers who did not experience preeclampsia in the 20-35 year group were 26 people (96.3%), the Mutlipara parity level was 19 people (70.4%), the level of education. 17 people (63%) and the type of work as self-employed as many as 11 people (40.7%).

Data History of Eating Behavior and Preeclampsia in Case and Control Groups

Table 3. Cross Distribution between Eating Behavior and Preeclampsia

Eating Behavior	Group		Total
	Case	Control	
Not healthy	20(90.9%)	2(9.1%)	22(100%)
Healthy	7(21.8%)	25(78.2%)	32(100%%)
Total	27(100%)	27(100%)	54(100%)

The results in table 3 show that mothers who experience preeclampsia from exposure to unhealthy eating behavior are as much as 90.9%. And mothers giving birth are not preeclampsia but are exposed to unhealthy eating behavior as much as 9.1%.

Results of the analysis of the history of eating behavior and the incidence of pre-eclancy in childbirth mothers

Table 4. Summary of Logistic Regression Test Results

Variable	p value	Exp (B)
Eating Behavior*Preeclampsia	0.000	35.714

The regression test results obtained p value = 0.00, (p <0.05). These results indicate that eating behavior during pregnancy affects the incidence of preeclampsia in mothers during pregnancy and childbirth. The result of the odds ratio (Exp B) is 35,714, this shows that pregnant women who have unhealthy eating behavior have a 35x greater risk of experiencing preeclampsia compared to pregnant women who have healthy eating behavior. From the results of this study we can also conclude that 35.7% of preeclampsia is influenced by eating behavior, and as much as 64.3% is caused by other factors.

Discussion

The results showed that the incidence of pre-eclampsia in women who gave birth, the age group> 35 years showed a high number of cases compared to the age of mothers <35 years. The results of the research by Saifuddin2014, explained that the highest incidence of preeclampsia occurs in adolescence or early 20 years of age, but the prevalence increases in women over 35 years[7]. Still according to Saifudin 2014 Age too young or too old is a factor in the occurrence of preeclampsia. Age less than 20 years is very risky because the reproductive organs are immature to get pregnant, and> 35 years of age the function of the reproductive organs also begins to decline so that they cannot work optimally. Mothers who are less than 20 years old and more than 35 years old have three times the potential to develop preeclampsia compared to pregnant women aged 20-35 years. But in fact, in the results of this study, the age of the mother who is not at risk also has a lot to contribute to the incidence of preeclampsia[7,8]. Another study that explains the pre-eclampsia of pregnant and childbirth women is according to Transyah C.H 2018 in the Obstetrics room of Dr.M General Hospital. Djamil Padang 2016 shows that the age of pregnant women is mostly not at risk for preeclampsia and a small proportion of the age of pregnant women who are at risk for pre-eclampsia.The results of the study based on maternal parity showed that there were more mothers with a history of multipara who had pre-eclampsia during pregnancy and childbirth than primipara mothers[13]. The results of research conducted by Pandiangan J.M and Kusnanto H (2017) stated that 25.23% of preeclampsia occurred in primipara, while the multipara group was 35.51%[14]. Research shows that parity of mothers who experience preeclampsia occurs more in multipara than primipara. This is different from the opinion of Saifuddin 2014 which states that primipara is also a risk factor for preeclampsia both during pregnancy and during childbirth. Based on the research results, it can be concluded that preeclampsia can occur in Primipara and Multipara mothers[7,13]. Primipara and Multipara mothers are both at risk of developing preeclampsia. Therefore, ANC services for mothers during pregnancy are very important so that they can detect any signs of preeclampsia[15].

The Effect of a History of Eating Behavior during Pregnancy on Preeclampsia

Based on the results of the regression test, it was found that pregnant women who have unhealthy eating behavior have a 35x greater risk of experiencing preeclampsia than pregnant women who have healthy eating behaviors. Research results that describe the same results as this study are the results of research by Retnawati and Suryanti 2017 that there is a relationship between the behavior of nutrient intake and the incidence of pre-eclampsia in pregnant women with a value of p = 0.000 (p <0.05)[16]. Rahayu and Suryandari's research 2014 states that the habit of consuming foods high in fat

and high in salt can lead to pre-eclampsia[8]. Food menu imbalances will form oxidative stress Hyman Mark, 2006. Oxidative stress is said to be the result of an increase in free fatty acids and inflammation, this may be caused by low consumption of antioxidants or high consumption of foods rich in carbohydrates and fats[17,18]. A diet like this is associated with an increase in free radicals in the body and then will cause preeclampsia[19]. So that a pregnant woman will be better off if she consumes foods that are healthy and contain balanced nutrition[16]. Another study conducted by Rahayu and Suryandari 2014 found that there was a relationship between junk food consumption habits and the incidence of pre-eclampsia in pregnant women (p-value = 0.012, 95% CI OR = 4.375)[8].This shows that the habit of consuming junk food can lead to pre-eclampsia. According to Almadsier 2004in Retnawati and Suryanti 2017 pregnant women need to eat foods that have complete nutrition, this is important, especially at 20 weeks of gestation, at this time pregnant women should not consume nutrients that are high in sodium and low in protein because they can cause pregnancy problems such as pre-eclampsia[8,16,19]. The impact of disruption of nursing patterns during pregnancy can result in an increasing number of pre-eclampsia which is characterized by symptoms of high blood pressure, excess protein levels in urine, leg edema, blurred vision, shortness of breath and decreased consciousness and seizures[20,21].

Conclusion

The conclusion of this study is the results of identification of the characteristics of pregnant women which show a description of the risk factors for eclampsia during childbirth, namely paretas, type of work and age group factors. The multipara group showed a greater incidence rate of preeclampsia than the primipara group. Based on the age group, the high incidence of preeclampsia during pregnancy and childbirth is the unhealthy age group, namely the age group <20 years and the age group> 35 years. The problem of eating behavior history during pregnancy in this study showed that a group of women with a history of unhealthy eating behavior during pregnancy contributed to the incidence of pre-eclampsia in childbirth. Based on the results of research on the history of eating behavior, that eating behavior during pregnancy affects the health status of the mother which will increase the morbidity rate of pregnant women, one of which is preeclampsia. Eating behavior during pregnancy affects the incidence of preeclampsia. Pregnant women with unhealthy eating habits have a 35x risk of experiencing preeclampsia compared to pregnant women with healthy eating behaviors.

Conflict of Interest: None

Source of Support: Self

Ethical Clearance: Ethical license is an approval from the Health Polytechnic Research Ethics Commission of the Ministry of Health Surabaya, this research does not use human and animal experiment objects, it only carries out surveys.

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